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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,259	01/16/2002	Masatoshi Nakagawa	36856.606	3425

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EXAMINER

KIM, PAUL D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,259

Applicant(s)

NAKAGAWA ET AL.

Examiner

Paul D Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12, 13, 16 and 19 is/are rejected.
- 7) ☒ Claim(s) 14, 15, 17, 18 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. This office action is a response to the amendment filed on 4/13/2004.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lai (US PAT. 6,259,185) in view of Colgan et al. (US PAT. 5,281,485).

Lai teaches a process of making a SAW device comprising steps of: providing a piezoelectric substrate (9); forming a first metallic thin film (20) on the piezoelectric substrate; and forming a second metallic thin film (22) made of aluminum and titanium on the first metallic thin film, wherein the at least one portion of the first metallic thin film includes titanium (see also col. 3, line 5 to col. 4, line 26).

However, Lai does not teach the second metallic thin film formed of Tantalum as a principal component and at least one portion of the tantalum of the second metallic thin film is alpha-tantalum. Colgan et al. teach a process of making an electrical structure comprising steps of: providing a substrate (SiO₂); forming a first metallic thin film (Ta (N)) on the substrate; and forming a second metallic thin film including a tantalum such as α-tantalum on the first metallic thin film in order to reduce the resistivity of the electrical structure as shown in Fig. 1B (see also col. 1, lines 19-24,col.

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3, lines 18-56 and col. 5, line 44 to col. 6, line 48). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the second metallic thin film of Lai by α -tantalum as the second metallic thin film as taught by Colgan et al. in order to reduce the resistivity of the electrical structure.

As per claim 12 Lai teaches that the metal layers are formed by sputtering (col. 3, line 66 to col. 4, line 1).

As per claim 19 Lai teaches that the thickness of the first metallic thin film is 400 angstroms (40 nm).

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lai in view of Colgan, and further in view of Kimura et al. (US PAT. 5,929,723).

Lai, modified by Colgan et al., teaches all of the limitations as set forth above except vapor deposition to form the metallic thin films. Kimura et al. teach a process of making a surface acoustic wave device including a process of forming a thin metallic film such as tantalum on a substrate by vapor deposition in order to deposit the metallic layer evenly on the substrate (see also, col. 1, lines 32-39). Therefore, it would also have been obvious at the time the invention was made to a person having ordinary skill in the art to modify deposition process of Lai, modified by Colgan et al., by vacuum deposition as taught by Kimura et al. in order to deposit the metallic layer evenly on the substrate.

Allowable Subject Matter

5. Claims 14, 15, 17, 18 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to claims 12-20 have been considered but are moot in view of the new ground(s) of rejection. Rejections are based on the newly cited reference.

7. Applicant argues that the prior art of record fails to disclose the claimed invention such as the at least one portion of the first metallic thin film includes titanium. Lai teaches a process of making a SAW device including that the at least one portion of the first metallic thin film is made of titanium.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 703-308-8356. The examiner can normally be reached on Tuesday-Friday between 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pdk



A. DEXTER TUGBANG
PRIMARY EXAMINER